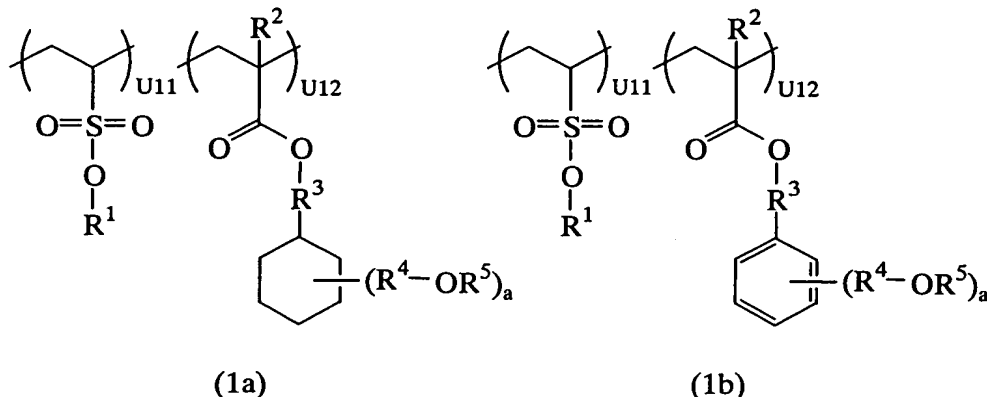


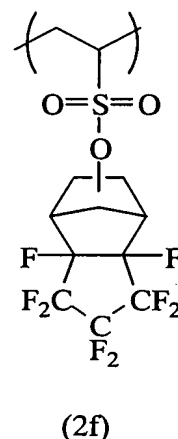
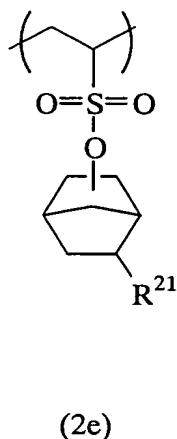
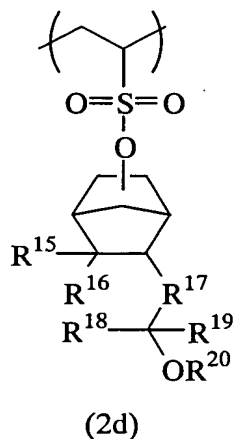
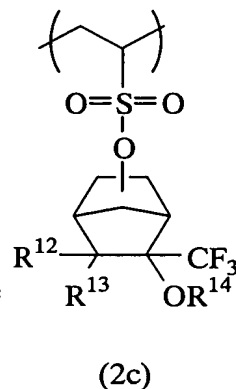
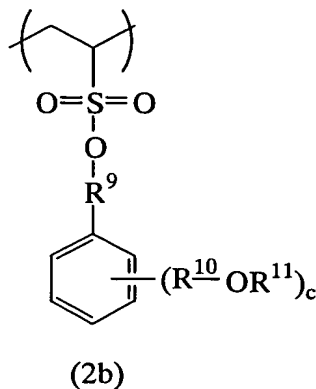
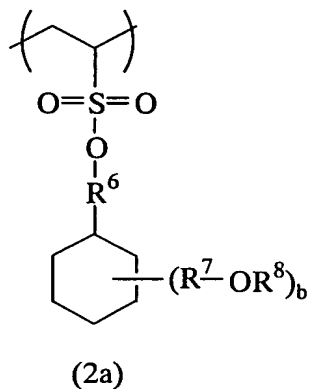
CLAIMS:

1. A polymer comprising recurring units of the following general formula (1a) or (1b) and having a weight average molecular weight of 1,000 to 500,000,



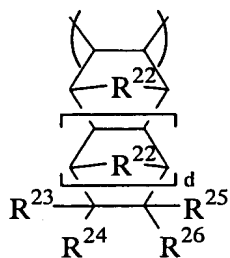
wherein  $R^1$  is an acid labile group, an adhesive group or a straight, branched or cyclic fluorinated alkyl group of 1 to 20 carbon atoms which may contain a hydrophilic group such as hydroxyl,  $R^2$  is hydrogen, fluorine or a straight, branched or cyclic alkyl or fluorinated alkyl group of 1 to 20 carbon atoms,  $R^3$  and  $R^4$  each are a single bond or a straight, branched or cyclic alkylene or fluorinated alkylene group of 1 to 20 carbon atoms,  $R^5$  is hydrogen or an acid labile group, "a" is 1 or 2, U11 and U12 are numbers satisfying  $0 < U11 < 1$  and  $0 < U12 < 1$ .

2. The polymer of claim 1 wherein the sulfonate units included in the formulae (1a) and (1b) are selected from the following general formulae (2a) to (2f):



- 5 wherein  $R^6$ ,  $R^7$ ,  $R^9$ ,  $R^{10}$  and  $R^{17}$  each are a single bond or a straight, branched or cyclic alkylene or fluorinated alkylene group of 1 to 20 carbon atoms,  $R^8$ ,  $R^{11}$ ,  $R^{14}$  and  $R^{20}$  each are hydrogen or an acid labile group,  $R^{12}$ ,  $R^{13}$ ,  $R^{15}$ ,  $R^{16}$ ,  $R^{18}$  and  $R^{19}$  each are hydrogen, fluorine or a straight, branched or cyclic
- 10 alkyl or fluorinated alkyl group of 1 to 20 carbon atoms, at least one of  $R^{18}$  and  $R^{19}$  contains at least one fluorine atom,  $R^{21}$  is a straight, branched or cyclic fluorinated alkyl group of 1 to 20 carbon atoms, and each of b and c is 1 or 2.

3. The polymer of claim 1, further comprising recurring units of the following general formula (3):

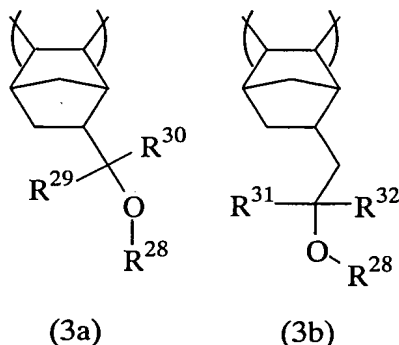


(3)

wherein  $R^{22}$  is a methylene group, oxygen atom or sulfur atom,  
 $R^{23}$  to  $R^{26}$  each are hydrogen, fluorine,  $-R^{27}-OR^{28}$ ,  $-R^{27}-CO_2R^{28}$  or  
 a straight, branched or cyclic alkyl or fluorinated alkyl  
 group of 1 to 20 carbon atoms, at least one of  $R^{23}$  to  $R^{26}$   
 contains  $-R^{27}-OR^{28}$  or  $-R^{27}-CO_2R^{28}$ ,  $R^{27}$  is a single bond or a  
 straight, branched or cyclic alkylene or fluorinated alkylene  
 group of 1 to 20 carbon atoms,  $R^{28}$  is hydrogen, an acid  
 labile group, an adhesive group or a straight, branched or  
 cyclic fluorinated alkyl group of 1 to 20 carbon atoms which  
 may contain a hydrophilic group such as hydroxyl, and  $d$  is 0  
 or 1.

15

4. The polymer of claim 3 wherein said recurring units of  
 formula (3) have a structure of the following general formula  
 (3a) or (3b):



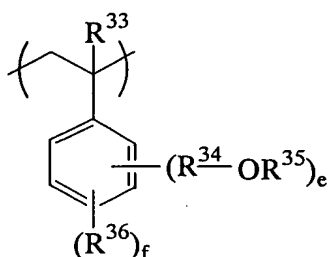
(3a)

(3b)

wherein  $R^{28}$  is as defined above,  $R^{29}$  to  $R^{32}$  each are hydrogen,  
 fluorine or an alkyl or fluorinated alkyl group of 1 to 4

carbon atoms, at least either one of  $R^{29}$  and  $R^{30}$  contains at least one fluorine atom, and at least either one of  $R^{31}$  and  $R^{32}$  contains at least one fluorine atom.

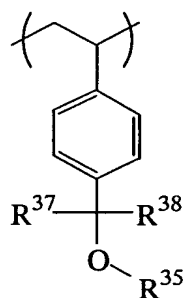
- 5 5. The polymer of claim 1, further comprising recurring units of the following general formula (4):



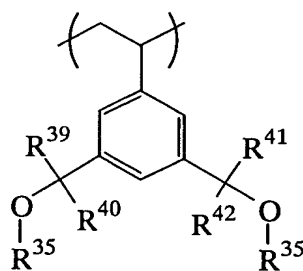
(4)

- wherein  $R^{33}$  is hydrogen, fluorine or a straight, branched or cyclic alkyl or fluorinated alkyl group of 1 to 20 carbon atoms,  $R^{34}$  is a single bond or a straight, branched or cyclic alkylene or fluorinated alkylene group of 1 to 20 carbon atoms,  $R^{35}$  is hydrogen or an acid labile group,  $R^{36}$  is fluorine or a straight, branched or cyclic fluorinated alkyl group of 1 to 20 carbon atoms,  $e$  is 1 or 2, and  $f$  is an integer of 0 to 4, satisfying  $1 \leq e+f \leq 5$ .

6. The polymer of claim 5 wherein the recurring units of formula (4) have the following formula (4a) or (4b):



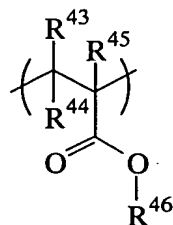
(4a)



(4b)

wherein  $R^{35}$  is as defined above,  $R^{37}$  to  $R^{42}$  each are hydrogen, fluorine or an alkyl or fluorinated alkyl group of 1 to 4 carbon atoms, at least either one of  $R^{37}$  and  $R^{38}$  contains at least one fluorine atom, at least either one of  $R^{39}$  and  $R^{40}$  contains at least one fluorine atom, and at least either one of  $R^{41}$  and  $R^{42}$  contains at least one fluorine atom.

7. The polymer of claim 1, further comprising recurring units of the following general formula (5):



wherein  $R^{43}$  to  $R^{45}$  each are hydrogen, fluorine or a straight, branched or cyclic alkyl or fluorinated alkyl group of 1 to 20 carbon atoms, and  $R^{46}$  is hydrogen, an acid labile group, an adhesive group or a straight, branched or cyclic fluorinated alkyl group of 1 to 20 carbon atoms which may contain a hydrophilic group such as hydroxyl.

8. The polymer of claim 7 wherein  $R^{45}$  in formula (5) is trifluoromethyl.

9. A resist composition comprising the polymer of claim 1.

10. A chemically amplified positive resist composition comprising

- (A) the polymer of claim 1,
- (B) an organic solvent, and
- (C) a photoacid generator.

11. The resist composition of claim 10, further comprising (D) a basic compound.

12. The resist composition of claim 10, further comprising (E) a dissolution inhibitor.

13. A process for forming a pattern comprising the steps  
5 of:

applying the resist composition of claim 9 onto a substrate to form a coating,

heat treating the coating and then exposing it to high-energy radiation in a wavelength band of 100 to 180 nm  
10 or 1 to 30 nm through a photomask, and

optionally heat treating the exposed coating and developing it with a developer.

14. The pattern forming process of claim 13 wherein the  
15 high-energy radiation is an F<sub>2</sub> laser beam, Ar<sub>2</sub> laser beam or soft x-ray.